

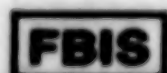
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22 April 1981

East Europe Report

ECONOMIC AND INDUSTRIAL AFFAIRS

No. 2118



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MINISTER COMMENTS ON WORLD FOOD PROBLEM, SSR AGRICULTURE

Bratislava SMENA in Slovak 10 Mar 81 pp 1, 4

[Interview with Eng Jan Janovic, Candidate for Doctor of Science, Minister of Agriculture and Food of the SSR by Gena Penkovsky: "Self-Sufficiency--A Necessity"; date and place not given]

[Text] Why do we have to concern ourselves with such a question as self-sufficiency in the production of food and especially of grains? Is it fashionable, or a matter of chance? It is neither of these. It is a much more complex and pressing issue.

[Question] We confront an unhappy fact: millions of people are dying of hunger, and half a billion are suffering from malnutrition. The Western powers, led by the United States, are taking advantage of this reality to exert political pressure on developing areas. What are the implications of this?

[Answer] The beginning of the 1970s represented a historic divide for the world economy which has become a landmark heralding the start of the development of new relationships in international economic and political life. A long period of cheap energy and raw material resources, including food resources, has ended. Economic development and international trade between 1973 and 1975 were literally frozen by a monetary, financial, raw materials, and energy crisis which, because of its depth, duration, and general character is considered to be the most complex crisis period for the capitalist economies since World War II. This crisis has assumed a chronic character, and still exists at the present time. At the same time, it is marked by a number of characteristics: sharp yearly price fluctuations, increased profits for multinational monopolies while economically powerful countries proceed with the accumulation of commercial surpluses and the countries with fewer economic resources are becoming ever more dependent on the economically powerful.

[Question] This explains precisely the situation which has been created around food and agricultural raw materials.

[Answer] Absolutely. A population explosion and lack of capital, as well as climatic influences widen the difference between production and consumption every year. Poverty, malnutrition, and hunger is increasing in the developing countries.

Every year there are 75 million more people on the earth, but in the past 10 years the increase in food production per capita has declined. This is reflected in increasing numbers of hungry people and it is estimated that 29 percent of the population in 92 countries suffers from malnutrition. There are three large hunger zones on the equator: Central and South America, Southeast Asia, and a great part of Africa.

[Question] From this, then, it follows that the imperialist countries are exploiting this situation to assert their political and economic goals in Asia, Latin America, and Africa.

[Answer] Foodstuffs, and above all grains, have become an important strategic weapon for them. The United States in particular uses deliveries of foodstuffs to increase its influence in these regions, making them dependent on the United States, and thereby trying to influence political development along a nonsocialist path. It is enough to recall certain speeches by American officials from recent years. The Secretary of Agriculture of the Ford Administration, Earl Butz, described with relish American food aid as "the No 2 strategic weapon of the United States." Congressman James Weaver wrote in BUSINESS WEEK that "food aid" is a more effective resource than any weapon with a neutron warhead. Recall also the comment of the former American president, Carter; "You are the sheiks of crude oil, but we are the sheiks of the food market. If the oil-producing countries want to raise export prices, that is fully within their power. But that is not wise because it is we who have in our hands the potential for embargoing the export of grains and other foodstuffs." His words are clear, there is certainly no need to comment on them. And what of the new Reagan administration? Agriculture Secretary John Block agreed in his program announcement that food could be used as a diplomatic weapon.

[Question] What enables the United States to adopt this dictatorial position?

[Answer] Above all, it is the very favorable location of the United States and its abundance of quality soil. The United States possesses, in the so-called grain belt, the most favorable conditions for the raising of grain in the world. At the same time, the overall climatic and soil conditions make it possible for them to raise not only all temperate zone crops, but also a number of subtropical and tropical plants. That is, without a doubt, the critical objective advantage of America over the other countries of the world. If we add to this a high level of mechanization, chemicalization, and a biological approach to agriculture, then you have the answer as to why it is the United States which raises about 60 percent of the world market supplies of wheat. This enables the United States to a large extent to dictate trade conditions in the West. For example, the decisive prices for all grains--except rice--and soybeans are determined on exchanges in the United States.

For this reason, the only feasible path is our self-sufficiency program as outlined by the 14th CPCZ Congress, and cooperation among the CEMA countries in increasing the production of grains and other foodstuffs in our zone. We have already embarked on this program in important ways, and the CSSR belongs among the leading countries of the world in terms of its production and per hectare yields. But all this has not been sufficient, so the prepared Seventh Five Year Plan places great emphasis on increasing self-sufficiency in the production and consumption of foodstuffs in our country.

[Question] Foodstuffs, this means, are more and more becoming a strategic raw material. What is the current worldwide situation and prospects for their production? Because of the population explosion, a general view is prevalent that they will not increase on a per capita basis, but decline.

[Answer] The population explosion and demands for an increase in living standards places very high demands on the whole society, but also on the soil and on nature itself, since we do not live in the air alone. If we want the world to produce more bread, meat, milk, eggs, vegetables, then we must have more industrial fertilizers and chemical protective products. Moreover, if we want more artificial fibers, paper, metal, if we want to increase the use of the automobile, without which we cannot conceive of life today, then this means a year to year decline in soil, fewer forests, losses of potable water, a worsening of important genetic stock for the future, in a word, a worsening of the environment. This is the basis of the writings of many Western futurologists, who see the future as quite dark. They have predicted that if trends in the population increase, in food production, and in environmental pollution continue unabated at the rates of the past 10 to 15 years, then in a few years billions of people will die of hunger each year and biological life on our planet will maintain itself for two to three centuries at the most.

[Question] naturally a materialist prognosis based on the materialistic study of the developmental laws of life on our planet views the future more optimistically.

[Answer] It is clear that without a solution to environmental pollution, controlling of the population explosion, discoveries of new energy and raw-materials resources, an equitable assurance of foodstuffs, the cessation of the arms race, and the arresting of the deepening disproportion between the poor and the rich countries, it will be very difficult to accomplish a turnaround of these dangerous developments, given the fundamental ideological differences between capitalist and socialist states. But there is no other way. For this reason the magnanimous proposals made by L.I. Breznev at the 26th CPSU Congress regarding the improvement of the international political atmosphere were very attractive. We are, however, aware that a solution to the above problems will not be achieved without deep social and economic changes, without a consistent respect for nature, but also for social laws. It is, therefore, not by chance that in recent years we have been witnessing intensive efforts in developed and developing areas and within international organizations to solve biological, economic, and technical problems, but also for reforms aimed at the creation of the conditions for resolving the difficulties in human nutrition. In the background of this worldwide development the profound foresight of our country and of all the countries of the socialist community stand out, because in these countries one of the main objectives is the systematic increase in the living standards of people, and the assurance of growth in foodstuff production as an organic component of the programmed goals of economic policy, based on a respect for preservation of the countryside and the environment generally. We want to leave future generations not only an economically prosperous agriculture, but also a beautiful and healthy country.

[Question] And what, comrade minister, is the current reality?

[Answer] The current situation in the world food economy is marked by an inequality between the supply of agricultural products and the demand for them and a simultaneous market instability in individual countries due to systematically increasing production costs. Although food prices are not rising as sharply as the prices of raw materials and fuels, by the end of 1979 they had surpassed their 1974 peak and were twice as high as they had been at the start of the 1970s. At the same time, there was an overall slowdown in the growth of production. In particular, 1980 was not a favorable agricultural year. Intense drought in parts of the United States reduced the production of feed grains. The Chinese harvest was about 20 million tons below the previous year. Weather problems affected Australia, Argentina, the USSR, Poland, and certain African and Asian countries as well. The countries of the European Economic Community, Hungary, Bulgaria, and Czechoslovakia had good harvests. Harvest failures struck 26 African countries, and these will attempt to import about a million tons more grain than last year.

It is possible to count on a complicated year on the world food market. According to a statement by Eduard Saum, general secretary of the FAO in Rome, the consequence of these low harvests has been a decline in world grain reserves to a point below the minimum level considered necessary for assuring world nutritional levels.

[Question] These are "favorable" conditions for a speculative increase in world prices.

[Answer] It is reflected, for instance, in the increase in beef prices, and the expansion of the production of pork and poultry which is quicker, less expensive, and more stable. Given the existing overall relation between meat and grain prices, no increase can be expected in meat production in developing countries, where there is a shortage of grain even to feed the population. On the basis of this and other conflicts, further heightening of tension is expected on the world food market. More people will go hungry, not because there is a lack of food worldwide, but because of the inability of the populations of many economically backward countries to buy. It is paradoxical, but given the current social, economic, and political situation, there will clearly be more hungry people during the coming two decades, even though conditions exist in the world for an increase in food production.

[Question] Recently the Western countries have even tried to blackmail the Soviet Union and other socialist countries with their infamous grain embargo. What are the implications of this for us from the viewpoint of the maximum utilization of our production potential?

[Answer] It is well known to everyone that every attempt at a blockade or embargo employed by the Capitalist world throughout the existence of the Soviet Union has been unsuccessful. This is the more true today when it has grown into an economic and political superpower possessing immense potential in all sectors of the national economy. The USSR today is one of the biggest producers of grain in the world, right behind China and the United States. Every year, even when there are

good harvests, it simultaneously buys and ships grain, because the shipping and purchase of grain is the normal practice in international trade, especially for countries with a large territory. For instance, it is more economical for the USSR to import grain in the Far East from the United States by ship than to transport it huge distances from the Ukraine or Kazakstan. For example, in the first three years of the 10th Five-Year Plan the USSR purchased 32.5 million tons of grain in the United States, primarily feed grains, to supplement its own production of 657 million tons. Meanwhile, during this same period it exported several million tons of grain to socialist and developing countries. Even in years of low harvests, such as the last 2, there was no lack of grain for bread for the regular provisioning of the population in the land of the Soviets. Purchases are targeted for the development of livestock production. Keep in mind that the Soviet Union has increased grain production from 125.5 million tons in 1960 to the current 235 million tons. In bad years the yield falls to below 190 million tons. This is a resounding success for Soviet farmers, since two-thirds of this grain production comes from the so-called zone of risky agriculture, in which there is either a lack of moisture or a short growing season. The bioclimatic potential of the agricultural zones of the USSR is 2.2 times less than in the United States and Europe.

[Question] You have already mentioned that in our republic, as well as in other socialist countries, all the conditions have been created for assuring self-sufficiency in grain.

[Answer] The general public knows that in the past 17 years we have achieved significant progress in this sector. Countryside production has increased by 190 percent, by 209 percent in Slovakia, and in the past 10 years yearly production has increased from 8.8 million tons to 11 million tons. Last year in Slovakia we achieved an average per hectare yield of 4.48 tons and, in comparison with the preceding five-year plan, in the Sixth Five-Year Plan we produced a million more tons of grain, though we are not satisfied even with this. The plant-production sector is fully mechanized, and the newest scientific-technical and biological findings are being applied in a comprehensive agrotechnology. As I have already mentioned, in this sector we are cooperating very closely with the CEMA member countries, especially with the USSR, whose grain types have brought about a revolution on our wheat fields. In coming years, we will direct our efforts at eliminating unjustified differences in the yields of districts and agricultural enterprises.

[Question] It is clear that the intention to achieve self-sufficiency under our conditions is not entirely a matter of chance. On the contrary, it requires from us the maximum utilization of all means of production, especially the soil. It is a shame that despite the existing law regarding its conservation, we do not always manage it frugally. What do you see as the main reasons for this situation?

[Answer] The land is the greatest resource of every country. The territory of our republic is settled relatively thickly, with about 117 persons for each square kilometer. This places us among the most populous countries of the world. There is only .538 hectare of agricultural land per inhabitant in Slovakia, and only .334 hectares of arable land. There is, moreover a yearly loss of about a quarter of a percent of this soil. This is a very serious loss. It is true that it is

impossible to prevent it fully. This trend, however, cannot continue indefinitely; there are certain boundaries which may not be stepped over. Our ministry is studying thoroughly all proposals for removing agricultural land from production and, when there are unjustified requests from investors we adopt a highly categorical stance against such proposals so as not to violate the law concerning the conservation of land resources. It is unfortunate that district and city national committees still at times give in to investor pressure, and that agriculturalists still often fail to use their stock of land rationally. The only way is for everyone who is responsible for upholding this law to adhere to it consistently and apply it uncompromisingly in practice. In our sector, we have developed a plan for making land productive. In the past 10 years we have obtained the use of 41,000 hectares of new soil, even though this replaced only a third of the total loss. The main unused potential is in the realm of intensification—in increasing the productivity of 32 percent of the less productive soil and 18 percent of the poorly productive soil. By completing the socialization of the private sector in central and eastern Slovakia between 1971 and 1979 we obtained 287,738 hectares of agricultural land which can be utilized more rationally in the cooperative sector. An extensive program is being implemented for enriching the East Slovak lowlands, Poipľia, the Subdanubian lowlands, and we are preparing to modify the water relationships in Zahore and elsewhere.

[Question] The food production goals are ambitious. How far did we progress in the Sixth Five-Year Plan?

[Answer] The past five-year plan period was the most difficult of the past 15 years from the viewpoint of agricultural conditions, especially those for plant production. Deviations from the norm were abnormally large, and were unfavorable in three of the five years. This resulted in a failure to fulfill the demanding targets of the Sixth Five-Year Plan. In spite of this, during this period agricultural production in Slovakia increased by 10 percent, with plant production increasing by 6 percent, and livestock production by 12 percent. But even though planned increases were not achieved, our citizens were not aware of this at the market, nor was it manifested in price increases as in the capitalist countries.

[Question] Our society has resolved problems in the spirit of its ideological principles—by the allocation of resources and the freeing of foreign currency for the purchase of feed grains and the necessary agricultural raw materials.

[Answer] Thanks to these comprehensive measures we have been basically successful in maintaining the growth dynamism of livestock production, which has enabled the food industry to fulfill the targets of the five-year plan and deliver to the retail network 24 percent more food products than in the Fifth Five-Year Plan. In comparison with 1975, consumers could purchase in the past year 34,000 tons more meat and meat products, and 15,000 tons more poultry. The average per capita consumption of meat increased 7.5 kilograms in 5 years. This is a performance for which we need not be ashamed before the world. At the same time, 25 percent more vegetables and 50 percent more fruit were purchased. We achieved some progress in the production of bulk fodder, and there was a turnaround in the production of fodder legumes as an important constituent of feed mixes. This is

an important measure to reduce imports. A similar assertion may be made for oil crops, especially for sunflowers. Their overall production increased 12 percent. The increased use value and improved conditions of animals made possible increases in egg deliveries of 145 million in milk deliveries of 88 million liters, in butter deliveries of 4,800 tons, and in cheese deliveries of 6,100 tons. These deliveries made possible a further increase in the average per capita consumption.

[Question] And where must we increase efforts?

[Answer] We must increase efforts in potato production, where we have not succeeded in achieving true mass production on the level we had imagined. We have to devote greater effort to the raising of highly productive biological stock, to comprehensive mechanization, to the protection, but also to the storage of potatoes, where there are high losses. We must pay more attention as well to fruit and vegetable production in which we are also a little behind the times. We have developed, however, a solid program for the Seventh Five-Year Plan. For instance, we will produce greenhouse vegetables on the basis of cheap energy, specifically waste heat from compressor stations, as well as energy from nuclear power plants and heat from thermal waters. Finally, we must also roll up our sleeves in the production of bulk fodder crops, the area in which I think we have the most unused potential. This is the other side to the solution of the grain problem, because as soon as there is enough bulk fodder we will not have to devote as much grain to fodder uses. We must, however, solve mechanization problems on steeper slopes. Engineers have concrete directives in this area, and there even exist prototype machines. It is desirable now only that the transition time from prototype to mass production not take too long, because our farmers are impatient already and desperately need this technology as well as replacements for people who have left to work in industry.

[Question] We are on the threshold of the Seventh Five-Year Plan. What is it most necessary to produce so that we do not stand still, but move forward?

[Answer] We are fully aware that we are entering economically much more difficult conditions in the eighties. The goals set before us by the socialist society are extraordinarily difficult from the viewpoint of the tautness of the resources at our disposal. If we are to fulfill these goals we will have to utilize economically very limited material and financial resources. It will require a further increase in the efficiency of socialist agriculture. This implies that there are two basic directions of action for our sector: first, the further intensification of domestic agricultural production and the development of those branches which will help us to reduce imports; second, a reduction of losses in the whole process from production to the final utilization of agricultural raw materials, and a higher valuation of all materials, energy, and investment in agriculture itself and in its processing industry.

In Slovakia, where there is relatively more unused potential in production intensity, an average increase of 2.6 percent per year is expected in agricultural production, while plant production is planned to increase by 20 percent in comparison with the results achieved in the Sixth Five-Year Plan, and livestock production by 9.1 percent. This proposal rests on the concept of a substantially

greater degree of self-sufficiency in feed grains and in certain plant products for the processing industry and for direct consumption. Therefore, a production increase of 14 percent and an increase in deliveries to market inventories of 15.5 percent is planned for the foodstuff industry, depending on the growth in agriculture and the actual possibilities for importing raw materials.

[Question] That means that in the Seventh Five-Year Plan as well the basic goal of our agricultural policy will be to increase the self-sufficiency of our republic in basic foods. The key position is occupied by plant production, on which is based the development of livestock production and the fulfillment of production targets in the food industry.

[Answer] Several organizational, personnel, economic, and other measures are being introduced to aid in the fulfillment of these demanding goals. As an example, one can cite the introduction of standardized technical systems in livestock production and crop-specific technical systems in plant production in all regions. We are pursuing the goal of greatly increased technological discipline in the raising of particular crops and the keeping of particular animals. These are systems which make possible the precise determination of who failed to uphold zootechnical and agronomical discipline, and when. A protein program is being put into practice along with a unified system for the nutrition of livestock which monitors the rational utilization of bulk and concentrated fodder.

[Question] In which areas will you invest the most?

[Answer] The greatest "investments" of the Seventh Five-Year Plan will be in people, in their preparation, training, improved selection, placement, but also in their supervision and control. We are proceeding from the reality that the finest resolutions, decrees, or measures are only worthless paper unless they are followed by talented, well-trained, committed employees. We want to create more room for the employment of young people right up to the supervisory level. We have had very good experience in this area at many united agricultural cooperatives, state farms, foodstuff factories, and in the management sphere. We want to speed up the pace still more in this area, because contemporary agricultural and food production is very qualification-intensive. It is sufficient to mention an agriculture with more than 600 chemical preparations, almost all of which are poisonous when administered in excessive dosages. The situation is at least comparable in the area of mechanization--in agriculture there are hundreds of high-performance machines. This means that there are excellent opportunities for young people in agriculture and in the food sector generally and we are pleased that they are not without interest in this field. The period on which we are embarking also has many new qualitative aspects in relations and management. We must improve the preparation for these. It will be necessary to alter, as they say "on the run," the philosophy of management and task assurance from the top down to the production employee in the direction of more rigorousness, quality, and efficiency. It is necessary to achieve these goals above all through improved utilization of scientific findings and of progressive techniques, and the improved use of existing resources by increasing incentives for production results and a strengthening of the element of merit in compensation. Measures in the area of management, planning, finance, and material incentives which are being prepared in the agrocomplex branch create truly more space for initiative, for the authority of all management levels, but also a responsibility for fulfilling the objectives of the whole society.

PROBLEMS IN CAPITAL INVESTMENT REVIEWED

Prague HOSPODARSKE NOVINY in Czech 13 Feb 81 p 6

[Article by Eng Miroslav Zidlicky of the Czechoslovak State Bank: "Capital Construction: Problems Remain"]

[Text] The Set of Measures for Improving the System of Planned Management of the National Economy after 1981 stipulates, among other things, an increase in the efficiency of structures to Kcs 2 million of budget costs and in machines and equipment not included in the budget (fixed-limit investments). This is primarily so that the rate of progressive modernizations and rapid return actions in this category of investments be as high as possible.

Low Rate of Modernization

The Czechoslovak State Bank has checked to what extent investor organizations have oriented their draft plans for capital construction for 1981 in this direction. The investigation was conducted among the central investors, middle management and all direct investors regulated by the federal Ministry of Metallurgy and Heavy Engineering, Ministry of General Engineering and Ministry of Electrico Technical Industry, and in the CSR and the SSR, also among branches of industry (especially the chemical and woodworking industries and light industry).

We can state that the central investors in their specification of the draft plan for 1981 did not altogether maintain the stipulated rate of progressive modernizations and rapid return actions in structures to Kcs 2 million and the machines and equipment not included in the budget. Of the overall volume of these projects and supplies totalling Kcs 18,595,000,000, they specified 46 percent rather than the 47.6 percent in the plan.

The set rate of progressive actions in the specifications of the draft plan for capital construction for the year 1981 was not held to by, for example, the following central investors: the federal Ministry of Metallurgy and Heavy Engineering was supposed to specify 45 percent of the volume of fixed-limit investments for metallurgy, but specified only 41.3 percent; for heavy engineering they were supposed to specify 50 percent of the fixed-limit investments and detailed only 45.4 percent; the federal Ministry of the Electro Technical Industry specified only 34.2 percent instead of 40 percent. In the CSR there was a similar failure to maintain the rate of progressive actions in the specifications

of the plan by the Ministry of Agriculture and Food for the food industry and by the Ministry of Construction for those organizations manufacturing building materials and for the construction enterprises; in the SSR, it was the Ministry of Industry in its specification for the organizations of the chemical industry and light industry.

A low rate of progressive actions from the fixed-limit investments was discovered primarily in those instances where the central investors reduced the basis for calculating the set rate of progressive actions from fixed-limit investments by the accrued investment reserve.

Nor did the direct investor organizations hold to the specified rate of progressive modernizations and rapid return actions of the suggested volume of fixed-limit investments in their draft plans for capital construction for 1981; in their draft plans for fixed-limit investments they inserted progressive modernizations and rapid return actions in the amount of Kcs 7,924,600,000 (43.9 percent of the yearly volume of fixed-limit investments), versus a specified Kcs 8,546,800,000 (45.9 percent of the yearly volume of projects and supplies for this category of investments).

There are investors, however, who managed to exceed the specified rate of progressive actions. For example, in ensuring the state target program for electronics, the organizations directed by the federal Ministry of the Electro-Technical Industry exceeded the rate of progressive modernizations in their draft plans for 1981; in the department of the Ministry of Industry of the CSR, the specified rate of progressive modernizations was exceeded by the organizations directed by the VILJ Lnarsky priemysl [Linen Industry] and the VILJ Drevarsky priemysl [Timber Industry]; and in the food industry, the organizations directed by the VILJ konzervarny and lihovary [Canneries and Distilleries] and the organizations of the Mrazirna [Freezer Plant] branch enterprise.

One of the principal reasons for not fulfilling the volume of specified progressive modernizations and rapid return actions was the fact that the investors did not find foreign suppliers of technology that would meet the criteria of efficiency set for 1981. This happened, for example, to the investors of the Moravske chemicke zavody [Moravian Chemical Works] in Ostrava, of Fotochema in Hradec Kralove, of the Cs kamenoprumysl [Czech Stone Industry] in Prague, the subgroup enterprise Bizuterie [Costume Jewelry], Preciosa, the Jablonecke Sklarny [Jablonec Glass Works], etc.

Efficiency Does Not Correspond to the Criteria

From the standpoint of the plan for 1981, included in the concept of progressive modernization and rapid return actions are machines and equipment not included in the budget that do not reduce the present number of work shifts and fulfill one of the following conditions:

—cost backflow is shorter than one-half the depreciation time of the machines and equipment not included in the budget, with a maximum of 8 years;

--profit backflow of new products is shorter than one-third the depreciation time of the machines and equipment not included in the budget, with a maximum of 4 years;

--with an absolute reduction in fuels, energy and oil, the backflow is shorter than 80 percent of the depreciation time of the machines and equipment not included in the budget;

--with an absolute reduction of workers, the backflow is shorter than two-thirds of the depreciation time of the machines and equipment not included in the budget;

--foreign exchange backflow with imported machines and equipment not included in the budget fulfills the conditions of the bank for granting foreign-exchange return credits.

A condition for inserting individual machines not included in the budget into the progressive modernizations and rapid return actions is also the projection of their planned effects into the appropriate portions of the draft plans and norms.

In its investigation, the bank ascertained that approximately one-fifth of the actions placed by the investor organizations among the progressive actions do not correspond to the aforementioned criteria for efficiency, or their efficiency was not sufficiently demonstrated by amended stock certificates. In such instances, the bank recommended that the investors eliminate the suggested actions from the draft plan for 1981 (in the amount of Kcs 1,643,600,000).

Following elimination of the incorrectly inserted actions, the rate of progressive modernizations and rapid return actions decreased in the draft plans for investments suggested by the investors for execution in 1981; for example, in the CSR among the organizations directed by the Ministry of Industry, it decreased in the chemical industry by 15.9 percent and in light industry by 13.2 percent; among the organizations directed by the Ministry of Construction, in those manufacturing building materials by 9.5 percent and among construction organizations by 10.1 percent; in the SSR, among organizations directed by the Ministry of Industry, in light industry by 12 percent and among the construction organizations by as much as 23.2 percent.

Organizational security and the development of a draft plan for 1981 stipulated a concentration of the machines and equipment not included in the projects budget into the comprehensive modernization programs. The Czechoslovak State Bank ascertained that federally directed organizations specified the comprehensive modernization programs; for the five-year plan, however, the nationally directed organizations did not specify comprehensive modernization programs at all in the draft plan.

The rate of comprehensive modernization programs was, therefore, ascertained by the bank on the basis of the draft plan of the direct investors. These programs are suggested for 1981 in the amount of Kcs 2,543,000,000 (14.1 percent of the fixed-limit investments).

The Direction of Progressive Modernization

In order to ensure the stipulated rate of progressive modernizations and rapid return actions in 1981, when working out the definitive operational plan for the state, the central investors in centrally regulated industry and construction must unconditionally specify the stipulated rates of progressive modernizations and rapid return actions for the subordinate organizations, and also in order that through this specification the comprehensive modernizations will be carried out. It is further necessary that investment reserves reach at least 8 percent of the overall volume of fixed-limit investments and in instances where there is a development fund on the level of the direct investors, that the reserve reach at least 10 percent, in order also to cover instances of a higher formation of its resources and the realization of fixed-limit investments among direct investors in amounts higher than the original. There is also a need for the central investors more emphatically to demand proof from subordinate organizations of the efficiency of unincorporated machines through amended stock certificates. And with the suppliers of machines and equipment, one has to verify why certain of their products do not meet the criteria set for 1981 for the progressive modernizations and rapid return actions and to adopt appropriate measures.

Following the development of definitive operational plans for 1981, the branches will verify among the direct investors whether they included in their plans fixed-limit investments in higher amounts than correspond to the formation of a development fund or, where there is no such fund, than corresponds to the specified obligatory limit in the volume of jobs and supplies at projects to Kcs 2 million of budgeted expenses and unincorporated machinery. The branches will likewise verify whether other less efficient actions were not projected into the definitive plans instead of the progressive actions. In cooperation with the engineering and technical personnel of the bank, the branches will verify the carrying out of progressive modernizations and rapid return actions, including fulfillment of the anticipated contributions and when the investment reserve is dissolved, they will ensure its efficient utilization. The bank will support the carrying out of progressive modernizations and rapid return actions even by granting more favorable investment credits.

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ECONOMIC DEVELOPMENT IN FIFTH FIVE-YEAR PLAN REPORTED

Budapest NEPSZABADSAG in Hungarian 22 Feb 81 pp 3-4

[Report by the Central Bureau of Statistics]

[Text] The most important task set by economic policy for the period of the Fifth Five-Year Plan was rapid improvement of the efficiency of social production combined with improved domestic and external balance of the national economy. This objective was motivated by long-range changes in price structures at the beginning of the 1970's and requirements posed by the transition to intensive economic development.

Production and consumption rose at a relatively rapid rate during the first years of the plan period. Accumulation increased especially rapidly in 1977-78; by 1978 it reached 30 percent of domestic utilization. During these years, economic regulators were not sufficiently conducive to intensive development and flexible adaptation to changing external and internal conditions. The rapid rise in domestic utilization led to a deteriorating economic balance, especially in foreign trade. This necessitated the introduction of more effective measures to facilitate the fulfillment of economic policy objectives.

In the 1979 and 1980 plans, priority was given to improving economic balance, especially the balance of foreign trade. Growth rates and patterns of distribution were a function of progress in this area. The other major task set by these plans was the preservation of the living standards of the population and improvements in living conditions. Economic regulators were adjusted in line with these two requirements; economic management was modernized and, in particular, normativity was strengthened. The goal of the newly introduced producer price mechanism is to convey more information to economic organizations with respect to the requirements for international competitiveness and the economic feasibility of exports and imports.

The main economic policy objective set by the plans in 1979-1980 have been fulfilled. The trade deficit has declined substantially in both years while the balance of foreign trade in 1979 and 1980 turned out better than planned. The efficiency of foreign trade work and the profitability of exports have improved. Exports varied among enterprises and product groups. Exports of some products increased substantially while exports of a number of products whose profitability

was inadequate have declined or stopped. In spite of recent significant world market price increases, the terms of trade calculated in dollars have not worsened.

Coordination between production and consumption has improved, largely as a result of declining domestic utilization. The decline has occurred in the categories of accumulation. Measures aimed at reducing unjustifiably large inventories and limiting investment to planned levels have been successful. The number of newly started investment projects declined and resources were concentrated on projects already in progress. As a result, the proportion of accumulation within domestic accumulation declined to 22 percent in 1980.

A favorable trend has started in manpower management and more effective utilization of labor. The balance between the number of job openings and available manpower has improved. In some cases, manpower freed as a result of modern work organization has been redirected elsewhere.

The objective of preserving living standards has been fulfilled. On the whole, purchasing power and product availability were in balance. Consumption by the population rose at a modest rate in 1979-1980. Living conditions were improved as a result of an expansion in housing and institutions serving the general population. Savings by the population increased. Total personal savings at the end of 1980 stood at 145 billion forints, 64 billion forints more than at the end of 1975.

The technical and scientific base of production has expanded. More than 90 billion forints were spent on scientific research in five years, i.e., an annual average 3.6 percent of national income.

The main economic policy goals were fulfilled while production and national income rose at a lower than planned rate. In 1980 national income stood at 584 billion forints, 17 percent above the 1975 level.

The 1980 level of production and consumption was lower than projected by the 5-year plan due to decisions that had to be adopted during the course of the plan. Nevertheless, the entire Fifth Five-Year Plan period, when compared to the Fourth Five-Year Plan period, brought substantial increases both in production and consumption.

Main Economic Indicators of the Fifth Five-Year Plan Period

	1980 as a percentage of 1975		1976-1980 as a percentage of 1971-75
	Planned	Actual	
National income	130-132	117	127
Domestic utilization of national income	123-125	109	123
Industrial production	133-135	118	129
Construction and assembly activities	130-133	110	125

Output of agricultural products	116-118*	112	115
Real per capita income	118-120	108	117
Total consumption by the population	121-123	113.5	120

Total for 1976-1980

	Planned	Actual	
Investments by socialist organizations (billion forints)	870	924	135
Housing construction (1,000 units)	430-440	453	103

* - 1976-1980 as a percentage of the preceding 5 years.

Industry

Industrial production in 1980 was 18 percent higher than 5 years ago. The level of employment in the socialist sector has declined continuously: in 1980, employment was 89,000 (5.4 percent) lower than in 1975. Output per employee rose by 25 percent in 5 years.

The resolution on the production structure called for substantial development of competitive sectors that are suitable for domestic conditions, combined with the elimination, when necessary, of some obsolete or uneconomic product groups and manufacturing sectors. The transformation of industrial production structure was accompanied by differentiated production in terms of sectors, enterprises and products. Among the main industrial sectors, the chemical and electricity generating industries increased their output at the fastest rate. The rise in construction materials industry output was also above average. Output of the machine and food industries rose at a rate equal to the average for industry as a whole. Output of mining, metallurgy and light industry rose at a moderate rate.

Production of Socialist Industry by Sectors

	1980 production as a percentage of 1975	Production Structure	
		1975	1980
Mining	105	4.2	3.7
Electricity generation	132	3.1	3.5
Metallurgy	108	10.0	9.1
Machine industry	118	27.0	26.8
Construction materials industry	123	3.1	3.2
Chemical industry	139	14.5	17.1
Light industry	111	17.4	16.3
Other industry	124	1.6	1.6
Food industry	117	19.1	18.7
Socialist industry, Total	118	100.0	100.0

Sales of industrial products increased by 18 percent in five years. The composition of sales changed in accordance with stated objectives. The volume of export products rose by 45 percent, the quantity of products sold to wholesale or retail trade rose by 16 percent while sales for investment purposes increased by 26 percent.

In terms of thermal units, the 1980 energy consumption of the national economy was 20 percent higher than in 1975. This increase has occurred in the first three years. As a result of improved energy management, energy consumption remained constant in 1979-1980. Domestic natural gas production increased by 18 percent while imports have expanded substantially, made possible to a large extent by the startup of the Orenburg gas pipeline built as a joint investment project by CEMA countries. The share of natural gas among all energy resources has grown from 19.3 percent in 1975 to 27 percent in 1980 while the share of oil declined from 38.2 percent to 35.1 percent. Coal production increased slightly but its average heat value has declined. Electrical energy production increased 17 percent while imports rose by 82 percent. The proportion of imports as a percentage of all available electrical energy rose to 23.9 percent by 1980. Expansion of electrical energy imports was made possible by the completion of the 750 kV power line built as a joint investment project of CEMA member countries.

Production of raw steel was slightly higher than in 1975. Capacity expansion was concentrated in the rolling mill sector during the plan period. Output of rolled steel has increased. The percentage of highly processed secondary and tertiary products has not increased.

Bauxite, aluminous earth and aluminum production increased at a moderate rate while output of semi-finished aluminum products rose by 14 percent. Production structure has been modernized: the output of highly sought-after aluminum foil has doubled while production of aluminum plates increased dynamically.

Within the machine industry, production increases were the highest in sectors with relatively low material and energy requirements, such as the telecommunications and vacuum technology sector and the instrument industry. Their growth in 5 years was 46 percent and 40 percent, respectively. Production growth in the electrical machine industry was also above average. Production of the machinery and factory equipment industry increased slightly while output of mass-produced metal goods was lower at the end of the plan period than five years ago.

The following data illustrates the structural modernization of industrial production: in the area of motor vehicles, 12,400 buses were made in 1980, 15.5 percent more than in 1975. In the area of machine tools, the production of modern, high performance numerically controlled machine tools rose at an above average rate. In the area of agricultural machine production, the output of animal husbandry and crop harvest machinery increased. Production of semiconductor devices and electrical lights rose while the production of vacuum tubes declined. Production of computer devices increased rapidly during the plan period. Production of medical instruments, telephone exchanges and transmission equipment increased substantially. In the area of consumer durables produced by the machine industry, there has been decreased emphasis on the production of color television sets, tape recorders,

washing machines (including automatic washers). Refrigerator lines have been modernized, with a substantial portion of production going for exports.

Production of a number of uneconomic machine industry products has stopped or declined in the course of the plan. For example, motorcycle production was eliminated while the manufacturing of vacuum cleaners, passenger and freight cars, tractors, trucks and a number of obsolete machine tools has declined substantially.

Fertilizer output, measured in terms of active ingredients, has increased by 48 percent in 5 years. The proportion of modern, combination fertilizers increased from 18.3 percent in 1975 to 34.9 percent in 1980. Output of pesticides rose substantially, by 69 percent. Production of plastics rose 2.6-fold. Production of ethylene and propylene has doubled since 1975. The role of man-made fibers within fiber production as a whole increased dynamically. Pharmaceutical production was 54 percent higher in 1980 than in 1975.

Cement production rose 20 percent relative to 1975, reaching 4.7 million tons in 1980. Brick production expanded by 6 percent in five years. There have been occasional shortages of small wall bricks. Due to changes in construction technology, the output of tiles, roof tiles and cement slabs declined while lime production remained unchanged. Asbestos cement roof slab and reinforced concrete roof beam production rose at an above average rate. Production of wall tiles at the end of the plan period was almost twice as high as in 1975 while plate glass production increased 70 percent. Expansion of construction material industry capacity and production led to a decline in imports of a number of construction materials.

The garment industry was able to satisfy demand in quantitative terms during the plan period. There have been some deficiencies in terms of selection, in spite of some improvement. Cotton fabric production declined in the second half of the plan period while its composition shifted toward better quality goods. The role of knit fabrics, suede and more valuable imitation leather increased relative to woven fabrics. Production of knit and leather garments increased substantially. Output of the leather, fur and shoe industries increased slowly in the first 3 years of the plan period and then declined in 1979 and 1980. The product structure of the sector has been modernized but it was unable to ensure adequate selection in terms of price and quality at all times.

Within the food industry there has been a substantial expansion of meat processing capacity. As a result, the output of salami, canned ham and canned meat production went up, with a substantial portion of these products going for export. Production of less expensive meat products for domestic consumption also went up in line with demand, especially after the 1979 price increases. Production of frozen fruits and canned vegetables increased dynamically. Safflower seed oil production increased 2.6-fold.

Construction Industry

The volume of construction and assembly activity in 1980 was 10 percent higher than in 1975. Coordination of construction demand and construction industry capacity has improved in recent years. Demand has declined and tensions have abated. This

was in part due to expanded construction industry capacities, reduced growth or decline of investments, and in part to increasing prices and costs of construction.

The building contractor sector accounted for approximately 60 percent of construction industry output. The machine capacity of these organizations rose by more than 40 percent in 5 years. The composition of the building materials used has been modernized. Mechanization made it possible for contractors to fulfill their tasks with a labor force 6 percent smaller than 5 years ago. Organization of construction activities has improved.

Agriculture and Forestry

In 5 years the output of agricultural products rose by 15 percent relative to the preceding five years. The state farms and the collective farms of the agricultural cooperatives, taken together, increased their output by 20 percent while production on household and auxiliary plots rose by 8 percent. There have been two years within the plan period (1976 and 1979) when there has been a decline, relative to the preceding year, in crop harvest, with a resulting decline in total agricultural production. Crop harvests increased by 11 percent in 5 years while animal husbandry output rose by 20 percent.

Agricultural production rose in the plan period while total agricultural acreage declined. The decline was greatest in tilled acreage (a loss of 241,000 hectares), but the area of fruit orchards and vineyards has also declined in the past 5 years. The area of gardening and grazing lands and pastures increased. The decline of the agricultural labor force was slower in the Fifth Five-Year Plan period than in earlier years. In the last 2 years, the number of employees in large farms has increased slightly. The technical base of agriculture increased substantially in the last 5 years. The total volume of mechanized traction was about 30 percent higher in 1980 than at the end of 1975. The grain silos and storage facilities built in the last 5 years are capable of storing more than 2 million tons of crops. 1.4 million tons of fertilizer were used in 1980, somewhat less than in 1975. On the other hand, fertilizer was being used more efficiently, as indicated by improved results in crop production.

The average annual grain production during the Fifth Five-Year Plan was 12.5 million tons, 11 percent more than in 1971-75. The average annual wheat crop was 5.2 million tons; corn, 6.3 million tons. This exceeds the production level of the preceding 5 years by 20 and 7 percent, respectively.

Increased harvest volumes were due to improved yields as the amount of cultivated land has declined relative to the preceding 5 years. The 5 year average yield was 4060 kg per hectare for wheat and 4860 kg per hectare for corn, each approximately 700 kg higher than in the preceding 5 years.

As a result of measures taken in the course of the plan period to encourage production and improve potato and fresh vegetable supplies, there were outstanding increases in vegetable production in 1977 and potato production in 1978. Due to marketing difficulties resulting from big harvests, storage problems and other factors, potato production declined in the last 2 years.

The 5 year average acreage under sugar beet increased by 26 percent while the volume of harvested sugar beets rose by 28 percent. Sunflower seed production increased rapidly during the plan period. 1980 acreage was about twice the 1975 level while the harvest has trebled since 1975.

Fruit and grape production have increased slightly although harvests have fluctuated from year to year.

In the area of animal stocks, there has been little change in beef cattle stock levels during the plan period. Stocks exceeded 1.9 million heads of cattle at the end of 1980. Large producers' stocks have increased while small producers' stocks have declined. The number of hogs continued to rise in the last 5 years. The cyclical fluctuations in the number of hogs raised by small producers have been eliminated. The number of hogs at the end of 1980 exceeded 8.3 million, 20 percent higher than 5 years ago. Sheep stocks increased tremendously, by about 1 million. By the end of 1980, the number of sheep exceeded 3 million. Poultry stocks exceeded 1975 levels in each year of the 5-year plan. Following the decline in 1976, total production of slaughter animals rose every year, exceeding 2 million tons (live weight) in each of the last 3 years. About 56 percent of the animals produced for slaughter were hogs. The role of beef production has declined to 17 percent at the end of the period. The share of poultry production increased to more than 20 percent at the end of 1980. Milk production increased by about 40 percent. The increase was due to improved yields. Egg production has declined in the last 2 years, largely as a result of the cutbacks in uneconomic exports.

Agriculture has adequately supplied the food requirements of the population while also delivering substantial quantities of products for export.

48,000 hectares of new forest were planted in the Fifth Five-Year plan period. The total area of forests reached 1.6 million hectares or 17 percent of the country.

Total lumber production was 7.5 million cubic meters in 1980, 13 percent more than in 1975.

Water Management

The average daily production capacity of public water districts increased by 1 million cubic meters during the plan period. The drinking water grid has been expanded by about 7,000 kilometers. In 1980 public water supplies reached 75 percent of the population. Five years ago the percentage stood at 66 percent. By the end of 1980 safe drinking water was delivered to 190 additional communities which were at risk from a public health standpoint.

There has been a substantial expansion of waste water treatment plants and sewage networks. Within waste water treatment capacities, there has been more than a doubling of mechanical and biological water treatment capacity. By the end of the plan period, 37 percent of the population lived in communities with sewage networks.

Flood control efficiency improved along with flood control organizations and the quality of equipment.

Transportation and Telecommunications

Transportation enterprises handled 388 million tons of goods in 1980, 12 percent more than in 1975. When transport distances are also considered, ton kilometer output rose by 22 percent. In particular, the increase was 4 percent for rail, 38 percent for road transport, 88 percent for water transport and 90 percent for pipeline transport. The role of rail transport within freight traffic has declined to 57 percent of the 1980 output. More than half of the output of transportation enterprises was related to international traffic which has increased by 31 percent in 5 years. Domestic traffic increased by 11 percent.

Long distance public mass transportation vehicles carried 1.187 billion passengers in 1980, 7 percent more than 5 years earlier. The number of passengers using the railroads and suburban rapid transit has declined while the number of bus passengers continued to climb. Based on passenger kilometer statistics for long distance mass transport, the share of rail and bus transport was about equal in 1980.

Local mass transportation carried almost 2.600 billion passengers in 1980, 11 percent more than in 1975. The number of passengers carried by mass transportation in Budapest has declined slightly in 5 years. Its composition has also changed: the number of subway passengers rose by 63 percent, bus ridership rose by 2 percent and streetcar ridership declined by 19 percent. Mass transportation ridership in provincial communities rose by 33 percent.

1.722 kilometers of railroad track have been modernized and 314 kilometers electrified during the plan period. The proportion of modern locomotives increased to 96 percent. A number of busy railroad junctions and border stations have undergone development.

The freight transportation vehicle fleet of road transport enterprises increased by 7 percent in 5 years. Travel conditions improved as a result of the expanding bus fleet. The number of streetcars has declined while the number of trolleys increased substantially. The Budapest subway network expanded by 8.5 kilometers.

The radio and television transmitter network has been expanded. At present the transmission of the Kossuth station can be received adequately over 97 percent of the country while 80 percent is covered by Petofi station, 84 percent by the mono version of Station 3 and 52 percent by the stereo version of Station 3. Television broadcasts on Channel 1 reach 91 percent of the country while Channel 2 is available over 54 percent of the country. The number of telephone sets and extensions connected to the telephone network increased by 213,000 (20 percent) in the course of the plan period. An automated letter processing machine was installed to improve the postal service.

Foreign Trade

In 1980 the quantity of imported goods was 21 percent above the 1975 level while exports were 40 percent larger. The volume of imports, especially that of non-ruble imports, increased rapidly in 1977-78, exceeding the growth rate of exports. The foreign trade balance deteriorated substantially. As a result of measures

aimed at improving our foreign trade balance imports slowed down in 1979 and 1980 while exports expanded and the trade deficit was narrowed significantly.

Planned cooperation with CEMA countries continued during the plan period. Scientific and technical relations progressed favorably. Our country took part in a number of investment projects which played an important role in our country's balanced energy supplies. The percentage of specialized products within trade has increased. In 1980 almost one-half of machine industry exports to CEMA countries consisted of products shipped on the basis of specialization and cooperation agreements. In 1980 more than half of our foreign trade turnover took place with socialist countries. The share of our biggest trade partner, the USSR, approached 30 percent of the total turnover.

During the plan period, almost one-half of all imports consisted of materials, semi-finished goods and components necessary for production while energy represented more than 10 percent. The volume of imported materials, semi-finished goods and components was 21 percent higher in 1980 than in 1975. Energy imports rose by 23 percent in 5 years. The percentage of finished industrial goods was about 30 percent of all imports: such imports increased by 24 percent in 5 years. Sixty-two to 70 percent of finished industrial goods and energy resources were purchased from the ruble accounting area.

During the Fifth Five-Year Plan period the most dynamic expansion of exports was concentrated in the area of materials, semi-finished goods and components (up 57 percent) and machines, factory and transport equipment (up 39 percent). Exports of industrial consumer goods were up by 28 percent and exports of agricultural and food industry products were up by 26 percent.

In the area of machine industry products, there has been a substantial increase in the export of buses, motor vehicle engines, incandescent light bulbs, medical X-ray equipment, tape recorders, refrigerators, etc. In the area of food industry base materials and products, there has been a considerable increase in exports of hogs, raw meat, poultry, canned vegetables and tomato, sunflower seeds and safflower oil.

Investment

The volume of investments during the plan period was about 35 percent higher than in 1971-75. Forty-five percent of investments by socialist organizations were under state authority while 55 percent was controlled by enterprises.

At the beginning of the 5-year plan period there was a high level of investment activity. 1979 and 1980 plans placed limitations on accumulation and, in particular, investment, in order to improve equilibrium and reduce investment-related tensions. During the last 2 years both the number and budgeted cost of ongoing investment projects have gone down.

Development and modernization of production was facilitated during the plan period by new investment, reconstruction and expansion projects. The Tisza 2 Thermal Power Plant, the Belaapattfalva Cement Factory, the oxygen intensification project

in the smelter plant of the Ozd Metallurgical Works together with the continuous steel casting plant and the rod and wire rolling mill have been completed, among others. Chemical industry capacity expanded as a result of the new polypropylene plant of the TVK [Tisza Chemical Works] and the new PVC factory of the BVK [Borsod Chemical Works]. The vertically integrated Dunaujvaros corrugated cardboard project and the Szikra Newspaper Printing Plant have been completed. Meat processing plants and factories have been built to expand food processing. The Szeged Salami Factory has expanded; the Hajdusag Sugar Factory and the Martfu Plant Oil Factory have been completed. Transportation and telecommunications improved with the continuing expressway construction and the completion of the Intersputnik earth station and the 2,000 kW AM transmitter. A number of department stores and shopping centers have been completed in Budapest and the provinces. Megye hospitals in Kerepestarcsa, South Pest and Kecskemet have begun operation.

These investments represented an approximately 30 percent increase in total fixed assets of the national economy.

Population, Population Shifts, Employment

Population of the nation stood at 10,713,000 on 1 January 1981, 150,000 above the level on 1 January 1976. The rate of population growth slowed down during the Fifth Five-Year Plan. The number of live births declined as a result of trends in the number of women of child-bearing age and other factors; it stood at 13.9 per 1,000 population in 1980. The death rate rose in the last 5 years (chiefly as a result of the increasing percentage of elderly people), reaching 13.6 per 1,000 population. Infant mortality has declined every year: in 1980 the number of infant deaths (under 1 year old) per 1,000 live births stood at 23, to be compared to 33 in 1975.

Active wage earners represented 47 percent (5,050,000) of the population on 1 January 1981. Their number declined by 43,000, or 0.8 percent, in 5 years. The percentage of industrial and construction workers declined significantly while that of agricultural workers has also declined slightly. Other sectors, especially non-material branches, employed a greater percentage of active wage earners at the end of the plan period than they did 5 years ago.

Income and Consumption by the Population

Income and consumption of the general population continued to increase during the plan period. Average monthly earnings and wage supplements related to price increases paid to workers and employees amounted to more than 4,400 forints in 1980, 43 percent more in nominal value than in 1975. Real wages were 3 percent higher than 5 years ago. The real value of the earnings of the work force of agricultural cooperatives developed over the whole plan period in ways similar to the real wages of employees.

The real value of monetary social payments per capita was 34 percent higher than in 1975 while that of payments in kind was 22 percent higher. Social payments rose by 29 percent in 5 years. Real income, which includes labor wages and social payments was 8 percent higher (per capita) than in 1975.

The number of old-age pensioners at the end of 1980 was 2,082,000, i.e., 280,000 more than 5 years earlier. The retirement age of cooperative farm workers was gradually reduced during the plan period: beginning with 1980, they are entitled to a pension at the same age as workers and employees. Fifty-six billion forints were paid out for old-age pensions in 1980: this is 29 billion forints more than in 1975. The average sum per pensioner rose from 1,272 forints in 1975 to 2,267 forints in 1980. Average pensions represented 41 percent of average earnings in 1975 and 52 percent in 1980. Along with higher pensions for new pensioners, the supplements related to price increases also contributed to rising pensions. In the case of low pensions, these supplements guaranteed the preservation of the real value of pensions.

The volume of family supplements was 13.6 billion forints in 1980, 7.1 billion forints above 1975. The increase is largely a result of the supplementary payments related to the 1976 and 1979 consumer price increases and the 1 July 1980 increase in family support payments to those with 3 or more children.

The number of recipients of child care assistance rose until the end of 1977 and has declined continuously since then, due to a decline in the number of births. 254,000 mothers received child care assistance in December 1980, i.e., 11,000 less than 5 years ago. 3.9 billion forints were paid for child care assistance in 1980, which is 0.9 billion forints more than in 1975, in spite of the decline in the number of recipients. The increase was the result of supplementary payments related to the price increases.

Per capita consumption increased by 12 percent in 5 years. In particular, the volume of food consumption has been satisfactory for a number of years, remaining stable at the 1975 level. Among biologically more valuable foods, meat and fish consumption was 73 kilograms per capita in 1980. During the plan period, milk and milk product consumption rose to 162 kilograms (up 28 percent) while egg consumption reached 335 (up 22 percent). Consumables, of which alcoholic beverages are the most important, rose by 22 percent from a rather high level 5 years ago. Consumption of clothing articles declined. In the area of consumer durables, retail trade sold 1.2 million refrigerators, more than 1 million washing machines, almost 1.5 million television sets and more than 500,000 cars. More than 90 percent of households with active wage-earners have refrigerators, washing machines and television sets. The majority of households have more than one radio. Household energy use increased at a relatively rapid rate while it has also become more modern and somewhat more conservation-minded after the price increases of July 1979. Per capita use of services increased faster than total consumption, by 24 percent in 5 years.

Consumer prices have increased on several occasions during the last 5 years. The most important central price increases included meat in 1976; coffee, confectionary goods and hard liquor in 1978; gasoline, tobacco, beer and newspapers in 1979 as well as the 23 July price increase which affected food, heating, household energy, furniture, passenger cars and certain building materials. The consumer price index was 36 percent higher in 1980 than in 1975.

The living standard of the population was improved by the completion of 453,000 housing units in 5 years, 13,000 more than in the preceding plan period. Thirty-six percent of new housing units were built with state resources while the rest were built by the private housing construction sector, largely with the help of state loans. The composition of the housing stock in terms of size and quality improved rapidly. At the time of the housing survey in 1980 almost one-half of all housing units had two rooms while 24 percent had 3 or more rooms. Bathrooms or wash-basin compartments are found in more than 60 percent of housing units.

Health, Education and Culture

The number of physicians increased by 3,781 during the Fifth Five-Year Plan. At the end of 1980 there were 28.8 physicians per 10,000 population, compared to 25.6 in 1975. Basic delivery of health services improved continuously with the organization of almost 400 new general practice and pediatric districts. The number of vacant district and pediatric district physician positions has declined. At the end of 1980, 4.7 percent of district physician and 5.9 percent of district pediatric positions were vacant, as against 6.6 and 9.4 percent in 1975, respectively. At the end of 1980 there were 2,100 inhabitants per district physician or pediatricist, almost 200 less than 5 years earlier. In spite of the large number of hospital beds eliminated or suspended, the number of hospital beds increased by almost 5,600. At the end of 1980 there were 89.2 operational hospital beds per 10,000 inhabitants, 4 more than at the end of 1975.

The number of day nursery places increased by 14,400 in 5 years. At the end of 1980, 64,600 day nursery places were available; this means 139 day nursery places per 1,000 children of the nursery age group, 42 more than 5 years earlier. Sixteen percent of children under three were admitted to day nurseries in 1980. Seventy-five percent were taken care of by mothers supported by childbirth and child care assistance.

The number of nursery school places rose to 385,000 in 1980, about 90,000 more than in 1975. 87.6 percent of children between the ages of three and six received nursery school care, compared to 75.5 percent in 1975.

Compared to 1975, the number of regular elementary school students increased and the number of full-time students enrolled in secondary and higher education establishments declined slightly. The changes in the number of students in elementary and secondary institutions are related to population trends of the respective age groups. The number of students relative to the respective age groups has increased at every level.

98.8 percent of children aged six to thirteen take part in elementary education. Forty percent of the 14 to 17 age group attends secondary schools, compared to 36 percent 5 years ago. Forty percent of those aged between 14 and 16 attend trade schools, somewhat more than 5 years ago. 9.2 percent of those aged between 18 and 22 are pursuing full-time studies at universities and colleges. In 1975 this percentage stood at 6.9 percent.

After-school day care includes 38.2 percent of elementary school pupils in 1980, compared to 30.5 percent in 1975. Twenty-four percent of secondary school students live in dormitories, compared to 20.8 percent in 1975. This proportion has hardly changed at all in the case of students in institutions of higher education: 47 percent lived in dormitories in 1980.

227,000 full-time students finished secondary school in 1976-1980 and another 155,000 got their diplomas through evening or correspondence courses. Diplomas in higher education were awarded to 74,400 young people and 59,200 adults. During the same period, almost 247,000 youths obtained their journeyman certificates.

In the area of communal forms of culture, the interest in cinema and theater has declined while interest in concerts and museums has increased. The Museum of the Hungarian Workers' Movement and the National Gallery opened their new homes within the framework of the reconstruction of the Buda Royal Castle; the Castle Theater has also begun operations. The reconstruction of the Municipal Concert Hall has been completed. The Kisfaludy Theater was completed in Győr.

8,240 books were published in 1980, 7 percent more than in 1975. The number of copies increased from 74 million to 95 million. The greatest increase occurred in young people's and children's book publishing.

The average length of weekly television programming in the last 5 years has been expanded from 15 to 16 hours while radio programming expanded by 50 hours. More than 7.5 million domestically produced phonograph records were sold in 1980, twice as many as at the beginning of the plan period.

Tourism

A total of 14 million foreigners arrived in our country, 49 percent more than in 1975. Among them, the number of tourists was 9.41 million, 88 percent more than 5 years earlier. Eighty-seven percent of all tourists arrived from socialist countries.

5.2 million Hungarian citizens traveled abroad in 1980, 50 percent more than in 1975. Ninety-one percent of all trips were to socialist countries.

Hotel capacity increased by 5,000 beds during the plan period, reaching 34,000 in 1980. The capacity of other accommodations (campsites, tourist hotels, private accommodations) expanded by 78,000 in the same period, exceeding 200,000. Receipts from tourism have doubled in 5 years.

Budapest, 21 February 1981

Central Statistical Office

9164

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OFFICIAL DEPLORES 'CINDERELLA' STATUS OF AGRICULTURE

Warsaw DZIENNIK LUDOWY in Polish 28 Jan 81 p 5

[Interview with Prof Dr Janusz Haman, secretary of the Agricultural and Forestry Sciences Department of PAN, by Hanna Lewandowska; date and place not given]

[Text] [Professor Haman] People must be brought to believe that nature cannot be deceived and that nature is not a customer who can be cheated. Nature will at once expose any inefficiency of ours. For example, if we would try to persuade her to make do, with two-thirds of the means she requires, nature will react right away—she will return us one-half of the planned production.

[Question] Why only one-half?

[Answer] Yes. Not two-thirds, but precisely one-half, although these proportions need not be quite exact. We took a risk in the past year in not importing the necessary amount of the means of plant protection and then came a rainy year favorable to plant diseases and there came about exactly that what did occur. Grain crops, sugar beets, fruits, and garden truck were affected. Nature did not forgive us that error.

Perhaps what I am going to say will sound perverse, but it seems to me that if the present year were fecund, there could be found executives who would not hesitate to decrease again the funds earmarked for agriculture.

[Question] This is a harsh statement.

[Answer] I also dream of it being the other way round. Nevertheless, I cannot ease myself of apprehension that once again a notion may be established that agriculture can manage without the help of powerful allies.

[Question] How can it be helped?

[Answer] More and more often there is talk of the need for the creation of an agricultural "lobby" in Poland. This is an American word which means a group of persons lobbying to influence administration, parliament, or local authorities. We had such pressure groups in the past decade by particular industries or particular privileged regions, and we know their results. That's not the point,

but I mean to establish in the minds of all Poles the understanding that without a good and efficient agriculture the country will never be out of the deep crisis which now affects it. There is much to be improved in Poland but without a sound food economy all our efforts will be of no avail. A democracy of the hungry, as someone has nicely said, is not what we should aim at, although democracy and self-government are two conditions for the progress in agriculture.

[Question] How does one secure those potential allies?

[Answer] I think that we should start to speak with a strong voice at all levels, beginning with the Sejm, the Government and Planning Commission, about the real requirements of agriculture. To speak not only in terms of the national income percentage, although I do not underestimate this index, but by using concrete data: how much money, tons of fertilizer, how many tractors and other machinery, simple tools, outlays for reclamation, are needed by agriculture to overcome the crisis. Such strong language should be also used by science, agricultural circles, rural self-government, trade unions. No small role can and should be played by the press, radio, and television. It was for this reason that I have accepted with appreciation the initiative of the editor of the DZIENNIK LUDOWY.

[Question] From the opinion expressed by you that agriculture will be able to feed the nation only if all other sectors of the economy work efficiently for it, it follows that these very sectors, branches and plants should be approached and pressed for a businesslike answer as to what they are able to do to help agriculture and the entire food economy.

[Answer] Certainly. The structure of our industry must be rebuilt anew, among other things, from the point of view of the needs of agriculture. If I were a journalist, I would ask, for example, the Ministry of Chemical Industry and its particular associations of enterprises, and even plants, what in particular they could change in the pattern of their production to better and more fully satisfy the needs of the countryside. Often these are small matters, but they are quite indispensable for farmers. I would also ask the Ministry of Machine Engineering Industry why it is allegedly such a complicated problem to produce ordinary chains, good and strong shovels, forks, etc.

[Question] Are you then minimizing your requests and expectations?

[Answer] Nothing of the kind. These are but examples, for no one will absolve industry from also producing complicated machinery and installations indispensable for all sectors of agriculture.

[Question] Such questions, however, were already asked the industry over and over again in the past years. But it was as futile as the production of a sufficient amount of strings for sheaf-binders.

[Answer] Just that. However, we are finding ourselves in a new situation where many plants will have nothing to produce for want of the raw materials or demand for their planned production, or because of the reduction in investments. It is precisely these enterprises, in the first place, should switch over to work for agriculture. I do not think of these plants alone. Much could be done by developing secondary production, using scrap materials or primary materials squandered in manufacturing useless products.

[Question] That won't be easy. The key industry is very slow in introducing innovations, it experiences difficulties in shifting over to another production, and requires much time to do this.

[Answer] That will not be easy, but it is necessary. Incidentally, the liquidation of local industry was, in my opinion, one of the most disastrous decisions taken in the past decade. Time and again, I used bring into operation the production of even rather complicated machinery or its prototypes, by entrusting this task to small plants. It was like this, for example, with the hop-picking equipment. These plants used to operate elastically and a great deal faster than the key industry.

[Question] I understand that you would like to launch a wide, social discussion by all those who might somehow or other help agriculture.

[Answer] There are grounds for such a discussion in the form of the guidelines of the Political Bureau of the PZPR Central Committee and of the Presidium of the Supreme Committee of the United Peasant Party (ZSL). One may hold a different opinion about these documents but one thing is unquestionable: that this is the first serious attempt to include the food economy not as a secondary element, but as a priority task in the overall economy of the country. It is precisely this that impresses me in these documents.

[Question] What then is the chief idea of your argumentation?

[Answer] I would like to question scores of people about what each of them in their bailiwick could do for agriculture. In receiving some task, each of them should, after all, give some thought if he can solve it in such a way that at the same time something might be done for the food industry. One should run into the heads of the people working in the Polish economy that they must perpetually think of this most important need of our society. I would also like to bring about the same in our scientific circles.

We cannot afford to make new, great investments for agriculture. This, after all, also cannot be accomplished quickly. On the other hand, this goal can be achieved by resorting to enormous resources of human initiative, resourcefulness and common sense. You have only to want it. However, this cannot be accomplished without wide propaganda and without creating a social climate for this really great nationwide problem.

This year, in the Opole region, sugar beets could not be harvested for lack of parts to machinery imported from France. The machinery is simple and no one can argue that our own industry cannot produce spare parts for it. It happens that I know all about it. To say that the funds for ordering them were exhausted is no excuse.

Agriculture has been treated until now as a third-class client. It mustn't be considered a "Cinderella" of our national economy, but a beloved child.

[Interviewer] We thank you, Professor, for the interview.

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STEEL INDUSTRY MODERNIZATION PROBLEMS DESCRIBED

Warsaw WIADOMOSCI HUTNICZE in Polish No 5, May 79 pp 170-176

[Article by Dr Eng Jan Cwintal: "Modernization Problems in the Iron and Steel Industry"]

[Text] The technological level of ferrous metallurgy in Poland is very variegated. Next to equipment representing the forefront of world technology, there is also equipment obsolete, requiring modernization or, in some instances, retirement.

The article reviews the basic prerequisites of modernization, such as the technological state of the production base, the development of requirements for metallurgical products, and social preconditions. It also sums up the experiences acquired in the 1970's, when this modernization of ferrous metallurgy began on a broad scale.

Introduction

An expansion of the range of modernization processes has come to be one of the basic principles of economic policy in our country, both from the point of view of the current day and that of the longer-term outlook. The advantage of modernization investments is their relatively high effectiveness. In comparison to investments in the strict meaning, i.e., the construction of plants from the base up, modernization is as a rule less capital- and material-intensive, requires smaller outlays on construction-installation work, and is fully implemented within shorter time periods.

The example of the highly industrialized countries shows that the higher the level of economic development, the larger is the share of modernization measures in overall investment expenditures. In some of these countries this share goes as high as 75 percent. In our country, too, the strengthening of modernization processes has become an objective necessity for the same reasons. Beyond this, the general employment situation argues in favor of this. At the present time Poland finds itself at a stage of a declining growth rate of labor resources, which imposes the necessity of achieving economies in the expenditure of human labor. Further

economic development must come about primarily through growth in labor productivity. This requires, above all, the transfer of workers employed on obsolete machinery to modern machines with higher technoeconomic parameters, which will make possible pronounced labor productivity gains.

The necessity for an expansion of modernization investments already found a certain reflection in the plan for the socioeconomic development of Poland in 1976-1980. About 30 percent of the total investment outlays in industry were allocated to this purpose. This affects about 2,400 enterprises, and the effect of these measures will be a growth of output in 1980 of more than 400 billion zlotys at an annual rate.

In metallurgy, the plan envisages the modernization of 95 enterprises the allocation of about 40.2 percent of the funds available, i.e., 115.8 billion zlotys, covering plants of ferrous metallurgy, nonferrous metallurgy, metallurgical machinery, and refractory materials.

1. Modernization Requirements of Ferrous Metallurgy

The basic determinants of the modernization of the production base are its technoeconomic state, the development of requirements for products, and social factors, in particular employment, environmental protection and working conditions.

1.1 The Technological and Economic State of the Production Base

The ferrous metallurgy industry comprises 27 metal works, 5 autonomous coking plants, and auxiliary enterprises: repair enterprises and processing plants for scrap metal, as well as 3 design offices and 2 scientific research institutes. The most modern plant is the newly commissioned Katowice Metal Works. The Lenin Metal Works (in Nowa Huta, near Krakow) and the Warsaw Metal Works also were built after World War II. The remaining metal works have traditions reaching as far back as to the beginning of the 19th century, and therefore the working conditions in these plants are mostly difficult, labor productivity is low, and some of their products fall short of contemporary technical requirements.

The technological level of modern metallurgy is determined by:

- the productivity of the basic productive equipment, especially in the raw-material departments and the rolling mills;

- the state of provisioning with auxiliary and specialized equipment, production lines with modern design solutions which permit the production of high-grade products, the introduction of new types and assortments of products and the satisfaction of the ever-growing requirements of consumers in the field of traditional products;

- the degree of mechanization and automation of production processes.

These factors determine the profitability of production and its modernity. The maintenance of a high technological level requires, besides the building of modern

plants, also the replacement of equipment and the modernization of existing departments in old plants, and in many cases even their closing down. The rate of renewal of the old metal works has been insufficient until now, and therefore their present level is very varied and the technical state of some departments even bad. The technological and production standard of individual branches of ferrous metallurgy is described below.

Coking Operations. The average annual coke output from one battery amounts to about 254,000 tons. Among the 75 batteries in operation at present, 43 have been in use for more than 30 years, and their share in total output comes to 27.5 percent. These are obsolete in design, and their annual production capacity ranges from 54,000 to 356,000 tons, whereas modern coking batteries in the Zdzieszowice Coke Chemistry Plants yield about 800,000 tons annually, and batteries with a capacity of 1.4 million tons annually are being constructed in the world. Moreover, the old coking ovens are serviced by obsolete machinery and require numerous services involving heavy labor (manual quenching of the coke, sealing of the doors, etc.). The poor technological state of the batteries exacts constant repairs, which in turn has the consequence of high production costs.

Blast Furnace Operations. Polish metallurgy has at its disposal 23 blast furnaces, with an average capacity of about 980 cubic meters. The largest units operate in the Katowice Metal Works (3,200 cubic meters). The average capacity of the 16 blast furnaces of the old metal works amounts to 539 cubic meters. The average share of sinter in the ore charge comes to 95 percent in the Katowice Metal Works, 84 percent in the Lenin Metal Works, 96 percent in the Bierut Metal Works, more than 80 percent in the Bobrek Works, and approximately 41 percent in the Kosciuszko Works; in the other foundries, the charge consists in principle of ores. The iron content of the charge is small and amounts to 50.0 percent on the average, which includes more than 51 percent in the Lenin and Katowice Works and about 45 percent in the older blast furnaces. The technological level of blast furnace operations is also characterized by the indicator of coke consumption per ton of pig iron. In Japan, this consumption is below 500 kg per ton of pig iron, whereas in Poland it amounts to about 600 kg per ton on the average--538 kg/t in the Lenin Works, and an average of 695 kg/t in the older metal works.

In all blast furnaces the work is almost in its entirety mechanized, and in the Katowice, Lenin, Bierut, Kosciuszko and Pokoj Works the charging of the furnaces is automated.

Steelmaking Operations. The level of steelmaking operations is determined by the following factors:

- the structure of the production processes employed;
- the provision of the steel mills with equipment for steel treatment beyond the basic production equipment, for the purpose of satisfying special requirements with respect to the chemical composition and purity of the steel;
- the mechanization of work (e.g., special overhead cranes, cement guns, sand slingers, etc.);

--the number of digital computers for the automation of furnace work and the control of the department.

In 1977, the shares of different steel smelting processes were as follows:

- oxygen-converter process, 29.5 percent;
- electric-furnace process, 14.3 percent;
- open-hearth process, 56.2 percent.

This testifies to our backwardness in relation to the leading countries in this field. The Lenin Metal Works are equipped with three converters; with an average smelting volume of about 130 tons, the converter mill produces about 3.4 million tons of steel annually, which is a yield at the world level. The two-converter steel mill in the Katowice Metal Works produced 4.0 million tons in its second year of operation, with an average smelting volume of about 320 tons. This plant belongs among the most modern steel mills in world metallurgy. In the electric-furnace steel mills of the metallurgical industry we operate 28 arc furnaces (7 of 140 tons, 7 of 50 tons, 4 of 25-30 tons, 4 of 20 tons, and 6 of 5-10 tons), of which 5, with a volume of 5-50 tons, produce only quality steels. The open-hearth steel mills dispose of 1 tandem furnace (Lenin Metal Works, annual output of 1.3 million tons) and 86 open-hearth furnaces, of which 8 have a volume of 370 tons each and an average annual output of about 280,000 tons, 15 have a volume of 100-200 tons and an average annual output of about 120,000 tons, and 63 have volumes of 30 to 90 tons and an annual output of about 75,000 tons on the average.

The steel mills are poorly outfitted with steel treatment equipment. Equipment for vacuum degassing of steel exists in five steel mills. In 1977, approximately 1.1 percent of the total steel output was degassed, whereas in the highly industrialized countries about 5-10 percent of total steel production is degassed in vacuum.

Electroslag remelting installations operate in the Baildon and the Batory Metal Works. In 1977, 0.04 percent of remelted steel was remelted by this method, whereas in the countries employing this technology the following percentages of total output are remelted: in Sweden, 0.5 percent; in the USSR, 0.3 percent; and in Great Britain, 0.1 percent.

Poland until now has not applied, on a technical scale, steel blowing in the ladle by means of inert gases, steel-puddling in the ladle by means of oxygen with simultaneous purging with argon and nitrogen (VOC process), or puddling with mixed gases in special converters under atmospheric pressure (AOD and CLU processes).

The number of installations for continuous casting of steel also is insufficient in Poland. There are only four such installations at work in our metal works, with an annual production capacity of about 1.1 million tons of steel, i.e., about 5.5 percent of its total production. The world capacity for continuous casting of steel exceeds 10 percent of total steel production.

Rolling Mills. The degree of modernity of a given rolling mill can be determined from its annual productivity, the appointment of the rolling and finishing mills with auxiliary equipment and the mechanization and automation of the production processes.

The obsolete technical state of the rolling mills operating in the old metal works is evidenced by their low production capacity. The initial processing mills have an annual output of 400,000-900,000 tons of blooms and billets, whereas the modern rolling mill in the Katowice Works produced 4,500,000 tons. Large rolling mills in the older metal works have a production capacity which is 3-8 times smaller than that of mills built nowadays in the world, and the wire rod mills have similarly low yields (4-6 times smaller), as do the sheet mills (10 times smaller). About 42 percent of the rolling mill systems in Poland have been working for more than 50 years, and 28 percent for more than 20 years. In most cases these are obsolete installations, with low productivity and only partially mechanized. For this reason, the productivity per worker in these operations is 2-4 times lower than in the rolling mills of the Lenin Works and as much as 10 times lower than in the rolling mills of the fully up-to-date Katowice Works. Out of 14 initial processing mills, only those in the Katowice, Lenin, Warsaw and Zawiercie Works can be considered modern, whereas the rolling mills in the Pokoj and Florian Metal Works are altogether obsolete technologically as well as worn out physically and not suited for modernization.

Modern shape mills for finished products exist only in the Katowice, Warsaw, Lenin and Cedler Metal Works. The remaining shape mills are of low productivity, and in some of them the bars for shaping are fed in by hand; they also have old-fashioned cooling systems and insufficiently equipped finishing stands. The old rolling mill systems and the design of the stands makes impossible the shaping of many modern profiles, e.g., that of broad-flanged beams. The lack of furnaces for heat treatment in the finishing stands of the rolling mills permits the satisfaction of domestic requirements for heat-treated metallurgical products only to a degree of 55 percent. The obsolete design of heating furnaces and the slow speed of rolling as well as the lack of modern cooling, especially for wire rods (with the exception of the new rolling mill in the Cedler Works), lead to an excessive level of scales and an inappropriate structure of the material.

The technical level of sheet mills is relatively higher than that of shape mills. In 1973, a modern plate mill was put into operation in the Bierut Works, the Lenin Works has a good rolling mill, and in recent years the rolling mills of the Batory Works were modernized, but, on the other hand, the sheet mills in the Pokoj, Nowotki and Stalowa Wola Works have obsolete rolling mill stands and are not capable of rolling straight narrow-back plates. Old cutting shears are the cause of excessive bending of the edges of sheets.

Pipe Production. The annual production of steel pipe in Poland amounts to about 1.1 million tons, i.e., roughly 7 percent of total steel production, or only a little less than in the highly industrialized countries (8-10 percent). The departments for the production of welded pipe are in general modern, since about 90 percent of the output comes from production lines built in the last few years.

Almost 70 percent of the output of seamless pipe is produced by the very old method of hot rolling on Pilger mills, a method which is not very productive and yields products of low quality. Nowadays this technology is employed in the world mainly for the production of seamless pipe of large diameters (200-700 mm). The four Pilger mill departments operating in Poland have been modernized during the last

decade. The remaining 30 percent of seamless pipe come from (hot-roll) push-broaching mills and from drawing mills as well as from (cold roll) Pilger mills, which represent a rather high level of technology.

The shaping of cold-roll seamless pipe by drawing and milling is done in three departments. One of these (the pipe-drawing mill in the Buczek Works) is in need of modernization, whereas the other two, which are relatively modern, require additional outfitting with grinders, straightening machines and machine tools.

The technologies applied in the pipe-production departments and their technical equipment, especially in the production of seamless pipe, limit the possibilities of producing all assortments and the reaching of the highest world standards. The majority of pipe works have no equipment for heat treatment, for nonintrusive examination and checking of pipe, or for the depositing of anticorrosion protection and the like.

Metallurgical Processing. In this group belong the departments for the processing of hot-rolled products by means of cold plastic processing, i.e., rolling mills for cold-roll strips and plates, with equipment for coating with tin, zinc, lead, lacquers and plastics and the like, bar and wire drawing mills, polishing and grinding shops, as well as departments for sheet-metal sections and corrugated and herringbone sheets. The application of these products produces significant steel savings in comparison with the use of traditional rolled goods. In addition they have more precise dimensions, better durability properties, smooth and clean surfaces (lack of scales), are more resistant to corrosion and more esthetical.

A high technical level and good quality of these products are conditions for the development of the automotive industry, construction, machine-building for the food and chemicals industry, electronics (including color television), the electronics industry and many others. The share of products of this group in the total output of rolled products comes to about 30 percent in the highly industrialized countries (FRG, France, Belgium). In Poland the share of metallurgical processing products in the output of rolled products amounted to 16.6 percent in 1977; the volume of their production is too small, which necessitates the satisfaction of the growing requirement for these products by means of imports.

The technical level of the departments of metallurgical processing varies. Cold-rolled sheets are supplied by the rolling mills of the Lenin Metal Works. The rolling mill constructed in the 1960's with a modern galvanizing plant is characterized by a level of heat treatment which is too low, but the newly constructed second rolling mill represents the world level. The rolling mill for transformer plates is similarly fully up-to-date. In the framework of the modernization of the Florian Metal Works, a department for galvanized, lacquer- or foil-coated sheets has been put into operation with an annual capacity of 200,000 tons of sheets. The most modern equipment installed there makes possible the achievement of coatings of regulated thickness and differentiated coverage on both sides which corresponds to the highest world parameters.

Among the departments producing cold-rolled strips, the strip mills in the Warsaw Metal Works and in the "Mikrohuta" works are among the modern ones, whereas those in the Baildon and Cedler Works require modernization from the bottom up.

In the field of drawing-mill operations, the Warsaw, Stalowa Wola and "Mikrohuta" works have modern drawing mills, while the remaining departments require renovation.

In the 1970's a department for cold-rolled sheet-metal sections with an annual capacity of 200,000 tons has been built in the Lenin Metal Works, which supplies a wide assortment of products of high quality.

This survey of the production capacity of ferrous metallurgy points to the need for its modernization, especially in the old plants. Beyond that, departments and installations with obsolete technological solutions also qualify for modernization in both the Lenin Metal Works and the Warsaw Metal Works.

1.2 Development of Requirements for Metallurgical Products

The continuous development of the national economy brings with it a growth in the requirements for the products of ferrous metallurgy, as also for new and modernized products which hitherto have not been produced in Poland. The acceleration of development in the 1970's evoked a rapid growth in the consumption of steel in Poland, from 11.8 million tons in 1970 to 17.8 million tons in 1975 and 19.8 million tons in 1977.

A high steel-intensiveness of growth has been a characteristic feature of the development stage of the national economy until now, though in the second half of the 1970's a trend of declining steel-intensiveness of national income has been observable:

	1975	1976	1977
tons [of steel] per 1 million zlotys of national income produced	12.7	12.1	11.8

On the assumption that this trend persists, we can estimate that the consumption of steel in 1980 will insignificantly exceed 21.0 million tons, and that it will grow to 27.0-29.0 million tons by 1990.

Apart from the rate of economic development, the following circumstances will influence the actual volume of consumption of ferrous metallurgy products: the development of industry and construction in a direction preferring steel-saving products and technologies, the rapidity of development of the production of substitutes for steel (especially aluminum and plastics), as well as the directions of development of ferrous metallurgy itself (the speed and range of the development of the production of highly processed and upgraded goods with higher durability parameters and of products made from alloy and special steels).

1.3 Social Factors Determining the Development of Ferrous Metallurgy

Demographic Factors. Since 1976 we have observed, for the first time in People's Poland, the phenomenon of a continuous lowering of the growth rate of the labor supply, owing equally to demographic changes and to the extension of the training period of the young, the lowering of the pensioning age, the lengthening of the

child-care period for mothers of small children, and the like. It is expected that the increase of the labor supply in 1976-1980 will be 1.1 million persons, i.e., 0.7 million persons less than in 1971-1975. This signifies that our country is in a gradual transition to a period of management with limited increases in the labor force. This trend will continue at least until 1990, with projections of the following increments in the labor force: 1.33 million in 1976-1980, 370,000 in 1981-1985, 260,000 in 1986-1990. The consequences of the quantitative decline in the employment increments will be partially offset by the growth in the qualification level of newly employed workers and of those already at work.

This new qualitative situation in the growth of the labor force has the consequence that, to a larger extent than until now, the growth of output must occur thanks to the modernization of the existing means of production rather than from their construction from the bottom up.

Environmental Factors. After the chemical and power industries, ferrous metallurgy is one of the heaviest polluters of the natural environment. Its production processes give rise to large quantities of partially toxic gaseous substances (SO_2 , CO_2 , CO, nitrogen compounds). In addition, metal works emit large quantities of dust, smoke, and so-called aerosols into the atmosphere. In natural-steel mills, about 20,000-27,000 cubic meters of gases and fumes are generated per ton of natural steel. The quantity and chemical composition of the substances reaching the environment is affected above all by the technical state of the production equipment, the quality of work of the cleaning installations, and the production processes employed.

The old metal works in general do not have very efficient dust-collection installations. The data for 1976 shown in Table 1 throw sufficient light on this situation.

Because of the large requirements for metallurgical products, the operation of installations is not interrupted even when it is very damaging for the environment. In the future, however, they will undergo modernization, be exchanged for less damaging installations, or be taken out of use.

A similar situation prevails in the field of water sewage disposal. The old metal works grouped in the ZHZiSt [Iron and Steel Industry Association] deviate especially in this respect from the indicators attained not only in the Katowice Metal Works, but also from those achieved by the Lenin Works.

In summing up, it must be stated that in order to avoid a further devastation of the environment, the pollution of the atmosphere, the waters and the soil by metallurgy needs to come to a halt at the present level. Further growth in the production of metallurgical goods should be accompanied by a process of liquidation of facilities harmful for the environment and the modernization of existing production capacities, taking into account the reduction of environmental pollution.

Table 1. Dust Emissions by Metallurgy Plants in 1976

(1) Wyszczególnienie zakładów	(2) Ilość pyłów tys. ton		(5) Poz. 8 (5:c) $\frac{2+3}{2+3} + 100\%$
	(3) wy- chwy- tywa- nych	(4) emi- towa- nych	
	1	2	3
(6) Zakłady podległe Zjednoczeniu Żelaza i Stali	316,55	132,39	70,5
(7) Huta im. Lenina — Kombinat	329,57	94,98	77,8
(8) Huta Katowice — Kombinat	94,50	19,80	82,7
(9) Zakłady podległe Zjednoczeniu Maszyn Hutniczych	19,68	2,74	87,8
10) Razem	760,34	349,91	75,2

Key:

1. Specification of plants
2. Volume of dust (thousand tons)
3. --Collected
4. --Emitted
5. [Dust collection as percentage of total dust--i.e.:]
6. Plants subordinated to the Iron and Steel Association
7. Lenin Metal Works--Combine
8. Katowice Metal Works--Combine
9. Plants subordinated to the Metallurgy Machinery Association
10. Total

Working Conditions. In spite of the efforts undertaken to improve the conditions of work of the labor force in the operations of old metallurgy, very onerous production departments still exist. The workers are exposed to the harmful influence of various substances, dust, noise, vibrations, hot and cold microclimates. In the old metal works, the norms binding in this field are at many working places exceeded. Beyond that, the degree of mechanization and automation of production processes is low, which forces the workers to high physical efforts. The difficult working conditions, which create relatively high danger levels, frequently lead to accidents, which remain at a rather high level in spite of a falling trend (in 1976, the accident frequency was 13.2 in the plants subject to the ZHZiST, and this indicator fell to 12.3 in 1977).

This feature of work in the old metallurgy sector creates difficulties in finding new workers for employment at onerous workplaces. In the future this will enforce the modernization of such workplaces or their elimination entirely.

2. Experience and Problems of Modernization in Metallurgy

In the 1970's, metallurgy was among the branches treated with preference in investment outlays, as the data in Table 2 testify. The most important investment project of this period is the Katowice Metal Works, which was erected in record time and comprises the full technological cycle—from an ore- and coke-preparation department to finishing mills. The total production capacity of the plant amounts to 4.5 million tons of steel per year.

Table 2. Investment Outlays on Ferrous Metallurgy, and Share in Total Outlays on the National Economy and on Industry (according to data of the Planning Commission attached to the Council of Ministers)

(1) Nakłady inwestycyjne		(2) 1966 do 1970	(3) 1971 do 1975	(4) 1976 do 1980*)
(5)	Hutnictwo żelaza, miedzi	28,9	80,9	194,5
(6)	Udział procentowy nakładów na hutnictwo żelaza			
(7)	w kwocie nakładów na:			
(8)	— całość gospodarki narodowej	3,0	4,2	6,1
	— przemysł	7,5	9,6	13,5

*) Wg NPSG.

Key:

1. Investment outlays
2. 1966 through 1970
3. 1971 through 1975
4. 1976 through 1980
5. Ferrous metallurgy (billions of zlotys)
6. Share of outlays on ferrous metallurgy in total outlays (in percent):
7. --on the national economy as a whole
8. --on industry
9. According to the national socioeconomic plan [for 1980]

Apart from the construction of a new metal works from the ground up, several new autonomous production departments were built. These were erected in the Lenin Metal Works (the plant in Bochnia, as well as a cold-roll plate mill and the expansion of a slabbing mill), in the Nowotki Works (a new plant comprising an electric steel furnace, a pressing plant, and a department for steel construction and mechanical dressing), in the Bierut Works (plate mills) and in the Zawiercie Works (an electric-furnace steel mill and a large rolling mill).

The new departments which were built in the Cedler, Warsaw, Ferrum, Pokoj, Baildon, Batory, Florian and Lazyska Works were in most cases erected according to up-to-date designs and with the provision of equipment from world market producers which represents world technical levels. The technical-economic results attained there are significantly better than those achieved in the old departments. Thanks to the mechanization and automation of processes, the working conditions of the labor force employed there is in general better than in the other production units.

Apart from the construction of new departments, the modernization of existing departments has been ever more widely spread (see Table 3). In the metallurgical plants mentioned, 6.5 billion zlotys have been spent for this purpose, with the achievement of an output increase of 8.2 billion zlotys. The average capital intensity of modernization in these undertakings came to 0.79 zlotys per zloty [of output], and thus was much more advantageous than in new investment projects.

Apart from economic benefits, one effect was a reduction of labor intensiveness in all modernized departments. The largest effect was attained in the Buczek Works, where thanks to the modernization of the welded-pipe department labor intensiveness was reduced from 6.61 hours per 1,000 zlotys to 0.81 hours.

The influence of modernization on changes in employment was varied. Among the modernized departments, employment fell in 7 departments and rose in 10. The total number of employed in these departments increased by 40 persons, primarily because in most cases new machinery and equipment was also installed in the expanded plants, thus creating new workplaces.

Thanks to the modernization, a significant improvement occurred in the basic economic ratios. The value of output sold increased by 42.4 percent, but employment only by 0.4 percent.

This signifies that 99.9 percent of the increase in production was attained by means of the growth of labor productivity.

As can be seen, modernization in ferrous metallurgy makes possible a profitable significant growth and quality improvement of production with only a minimal increase in employment.

In the course of implementation of the modernization of departments, the following phenomena were observed:

--overruns of the execution cycle of these investments, resulting from a lack of specialized construction-installation enterprises capable of implementing production-installation tasks efficiently in direct contact with ongoing production;

--difficulties in obtaining indispensable machinery and equipment; the necessity of using certain nonstandard elements not in series production or altogether not in production creates significant troubles in placing contracts with producers of machinery and equipment;

Table 3. Characteristics of the Most Important Modernized Ferrous Metallurgy Departments (on the basis of Biprohutu data)

(1) Nazwa obiektu	(2) Okres modernizacji	(3) Na- klady mln zł	(4) Wartość rocznej produkcji przed mo- dernizacją mln zł	(5) Wartość przyrostu rocznej produkcji mln zł	(6) Liczba zatrud- nio- nych przed moder- nizacją	(7) Zmia- ny w za- trud- nie- niu	(8) Ka- pia- ło- chłon- ność zł/zł	(9) Pracochłon- ność h/1000 zł	
								przed mo- derni- zacją	po mo- derni- zacji
								(10)	(11)
Huta im. F. Dzierżyńskiego: walcownia zgniatacz, walcownia średnia i walcownia mała (12)	do 1972	478,4	3086,6	905,2	1581	-395	0,53	1,21	0,70
Huta Florian: (13) walcownia taśm walcowa- nych na zimno	do 1972	26,8	382,2	62,9	555	-66	0,43	3,42	2,58
Huta Łabedy: (14) — stalownia martenowska	1975÷78	440,0	2700	99,0	900	+40	4,44	0,66	0,67
— walcownia średnia	1975÷78	244,0	2100	403,0	330	—	0,61	0,31	0,26
Huta im. Lenina: (15) wielki piec nr 3	1978	550,0	2370	700	70	+12	0,78	0,06	0,05
Huta im. M. Buczka: (16) — wydział rur zgrzewanych	1973÷74	44,4	59,9	307,0	168	-41	0,14	0,61	0,81
— wydział rur „Wellman”	1975÷76	171,4	96,6	500,0	435	+65	0,34	9,02	1,67
Huta Batory: (17) — walcownia blach grubych	1974÷76	91,6	2700,0	25,0	1199	-100	3,68	0,89	1,80
— prasownia i młotownia	1974÷76	660,0	800	932,3	810	+210	0,71	2,03	1,17
Huta Baildon: (18) — stalownia elektryczna	1975÷78	2305,0	1500	2550,0	560	-100	0,90	0,75	0,23
— wydział metalurgii prosz- ków	1970÷76	214,8	500	227,1	510	+145	0,95	2,04	1,80
— wydział wolframu	1971÷76	156,0	143	211,8	106	+60	0,74	1,48	0,94
Huta Warszawa: (19) — rozbudowa ciagarni pre- tów	1973÷78	553,0	500	826	486	+120	0,67	1,94	0,91
— dozbrojenie walcowni ma- łej	1974÷78	274,6	1400	320,0	517	+60	0,86	0,74	0,67
Huta Ferrum: (20) rurownia	1973÷78	220,7	500	135,0	480	+50	1,63	1,92	1,67
Huta Łaziska (21)	1975÷77	58,3	500		210	-20	—	0,81	0,76
Razem (22)		6490,1	19 338,4	8204,0	9007	+40	0,79	0,93	0,68

Key:

1. Name of project
2. Period of modernization
3. Expenditures (million zlotys)
4. Value of annual output before modernization (million zlotys)
5. Value of increase in annual output (million zlotys)
6. Number of employed before modernization
7. Change in employment
8. Capital intensiveness (zlotys/zlotys)

[Key continued on following page]

Table 3 (continued)

9. Labor intensiveness (hours/1000 zlotys)
10. --prior to modernization
11. --after modernization
12. Dzierzynski Works: blooming mill, medium-size rolling mill and small rolling mill
13. Florian Works: cold-roll strip mill
14. Labeda Works:
 - open-hearth steel mill
 - medium-size rolling mill
15. Lenin Works:
 - blast furnace No 3
16. M. Buczek Works:
 - welded-pipe department
 - "Wellman"-pipe department
17. Batory Works:
 - plate mill
 - pressing plant and hammer forge
18. Baildon Works:
 - electric-furnace steel mill
 - powder metallurgy department
 - tungsten department
19. Warsaw Works:
 - expansion of bar-drawing mill
 - supplementary equipment of small rolling mill
20. Ferrum Works: pipe mill
21. Laziska Works
22. Total

--the necessity of treating repairs as a method for the modernization of installations;

--in the future, the necessity for stronger incentives to favor modernization for designers as a group.

3. Conclusions

1. The technical and production state, the employment situation, the deleterious influence on the environment and the difficult working conditions which occur in a significant portion of the ferrous metallurgy production capacity indicate the necessity for its modernization; for the nearest future this must be acknowledged as the basic direction of investment.

2. The experience with the modernization of production departments in metallurgy indicates that this is an altogether effective process which makes economically possible a growth of output and an improvement of its quality with an insignificant growth of employment.

3. With the aim of assuring appropriate conditions for an efficient unfolding of the modernization process, it is necessary to strive for the following:

--specialization of construction-installation capacities for work under the conditions of a normally operating metallurgical plant or production department;

--raising the incentives for producers of machinery and equipment to make deliveries for the modernization of plants, and in design offices enhancing the work on the modernization of departments.

4. The practice of utilizing repairs for the purpose of modernization is fully justified. A more general utilization of the easements created in the state regulations on preferential treatment for modernization investments (see Regulation No 66 of the Chairman of the Council of Ministers of 27 December 1977 in the matter of criteria and allocations for modernization investments in industry) is also advisable.

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